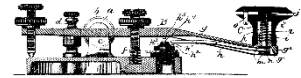




Bexar Wire

San Antonio Radio Club
W5SC



2018, No. 5

May 2018

Beverage Antenna



Tom O'Brien, AB5XZ, making his presentation at the April 12, 2018, General Membership Meeting on the Beverage Antenna.

Our last meeting at Grady's Barbeque, 327 E. Nakoma Dr., San Antonio, TX 78216 at 7:00 p. m. on Thursday, April 12, 2018, featured a presentation by Tom O'Brien, AB5XZ, on the Beverage Antenna. Contrary to misconceptions that this is an antenna made from beer cans, a Beverage Antenna is called a Beverage Antenna because it was invented by Harold Beverage, 2BML. This is primarily a receiving antenna and not an antenna used in transmitting. It is a long, usually heavy wire antenna connected to the ground such that a receiver measures the difference in the arrival times between the wave traveling the wire and the wave traveling in the ground. Since Beverage

Antennas are between 0.55 to 4.4 wavelengths long, they require a lot of room. They are uni- or bi-directional antennas. Combined with their length, this makes it difficult to change receiving direction. It was an illuminative presentation. A copy of his viewgraphs appears as a separate article starting on Page 7.

After Tom AB5XZ completed his presentation, he was thanked by Mike Harrison, KD5KST, on behalf of all members present. The President then presented him with a Program Certificate of Appreciation.

Officer and Committee reports were generally routine and are shown in the minutes starting on Page 3. The key highlights were Field Day 2018 and Centennial Commemoration. Since the Field Day Chairperson was unexpectedly absent, the President covered his items with a special emphasis on declaring personal antennas being brought to Field Day and sponsorship of additional SARC owned antennas. Two members turned in SARC Field Day 2018 Antenna forms at the conclusion of the meeting

Antenna Propagation

Our next club meeting will be at 7:00 p. m. (1900) on Thursday, May 10, 2018, at Grady's Barbeque, 327 E. Nakoma Dr., San Antonio, TX 78216. The program will be presented by Steve Cerwin, WA5FRF, on Antenna Propagation.



Tom O'Brien, AB5XZ, receiving a Program Certificate of Appreciation from Harold Fleischer, AE5AS

SAN ANTONIO RADIO CLUB

PRESIDENT'S RADIOGRAM

NUMBER	PRECEDENCE	HX	STATION OF ORIGIN	CHECK	PLACE OF ORIGIN	TIME FILED	DATE
5	R		AE5AS		San Antonio, TX		May

TO

W5SC

Field Day 2018 is the fourth weekend of June 2018. Setup starts Friday afternoon, .June 22, 2018. That is only six (6) weeks after our May 10, 2018 General Membership Meeting. Prep work is well underway. Jone Bruno, WB5AUQ, hand carried the permit to the City of Shavno Park. Representatives of SARC will be attending the City of Shavno Park Council Meeting on May 14, 2018 to receive their proclamation supporting amateur radio. The site is nailed down.

Equipment checks have been done. One of two generators found to have problems has been repaired and the other is in the process of being repaired. Our Alinco HF radio has been placed in a case with foam cut out for it. Our Alinco VHF/UHF radio has been placed in another case with foam for it. The beam antenna controller, cable, etc. have been placed in an appropriate sized case. Push-on PL259 connectors have been bought to make antenna RF cable attachment and detachment to the Patch Panel quicker, especially when lightning is present. There are other equipment adjustments going on.

So far, three members have said that they will bring personal antennas. They will get worked into the antenna plan along with anyone else who steps forward by May 31, 2018. A site walkthrough will happen between May 31, 2018 and June 13, 2018 such that the site plan and antenna plan can be shared with all members at the June 14, 2018 General Membership Meeting.

We do need to identify Table Captains for setup and tear down, Iron Radio Operators (hams staying all night to operate and secure property), and others to lead work details like food, antennas, generators, tent, etc. We had a lot of members step up to these tasks last year and expect the same to happen this year. Your level of participation is up to you and may range from just a few hours to the everything



AE5AS

Bexar Wire

Published monthly by:
San Antonio Radio Club

Harold C. Fleischer, III AE5AS
President

Robert W. (Bob) Thompson, K5RWT
Editor
210-900-7650
haroldcf@swbell.net

The due date for articles is the Friday before the first Monday of the month.

Harold Fleischer, AE5AS, President, called the meeting to order at 7:00 p. m. at Grady's BAR-B-Q, 327 E. Nakoma Dr., San Antonio, TX 78216. There were 18 members and 5 guests in attendance. (Fifteen ate at Grady's BBQ before the meeting.)

Harold Fleischer, AE5AS, then introduced himself as Harold AE5AS and then in accordance with SARC custom asked everyone else to introduce themselves.

Harold Fleischer, AE5AS, then turned the meeting over to Mike Harrison, KB5KST, Vice President, who introduced the program. The program was presented by Tom O'Brien, AB5XZ on Beverage Antenna (34 minutes from 7:05 pm to 7:39 pm). Mike Harrison, KB5KST, thanked Tom O'Brien, AB5XZ, and turned the meeting back over to Harold Fleischer, AE5AS, who immediately presented Tom O'Brien, AB5XZ, with a Program Certificate of Appreciation.

Harold Fleischer, AE5AS, then reviewed the printed agenda for meeting with the members present and asked if there were any modifications. There being no modifications suggested, Harold Fleischer AE5AS announced the printed agenda as orders for the meeting by unanimous consent.

Harold Fleischer, AE5AS, then stated that whereas the minutes for the last meeting on March 8, 2018 had been distributed in the April 2018 Bexar Wire newsletter that unless there were corrections or objections that we would dispense with the reading of the minutes and approve them as written by unanimous consent.

Officer Reports:

President

Appointment:

Richard Elder, WB5ACN, has been appointed the Chairperson of the Filter Committee. This temporary committee will build filters for Field Day 2018 to improve radio performance.

Need a Newsletter Editor

Vice President – Future Program: The program in May 2018 will be on “Everything you ever wanted to know about antennas but were afraid to ask” by Steve Cerwin, WA5FRF.

Secretary – no report

Treasurer – Financial Report was distributed by the Treasurer.

The required IRS non-profit tax filing has been made.

Newsletter Editor - The April 2018 *Bexar Wire* newsletter was sent to Jeff Boyes, ND8B, on April 9, 2018 for emailing to membership.

The April 2018 *Bexar Wire* newsletter was sent out by Jeff Boyes, ND8B, on April 10, 2018.

The deadline for input, as stated on the bottom of page 2, remains the last Friday of the month.

Webmaster – Bill Craft, KD2HIQ, reported;

- That he added meeting location with a link to Google Maps to the News Blast for meetings.
- Improved the Trading Post page for smart phones by adding icons to help navigate.
- Updated an email address on the leadership page.
- We get half our traffic from desktops, one third from mobile phones, and the rest (14%) from tablets.
- Our views on the website and Facebook remain down from the highs we saw during Radio Fiesta 2018.

Chairman of the Board Report –Bob Rodriguez, K5AUW - no report

Committee Reports

Education and Training – Bob Rodriguez, K5AUW, reported that he plans to do a Technician Class followed by a General Class in the July-August 2018. He is working scheduling issues and

- Operating parameters are: 12 hours (7 a. m. to 7 p. m.) with set up first two hours and tear down last two hours (public/operating hours 9 a. m. to 5 p. m.). We would use 1 transceiver and announce that we would be working 2-3 bands. We would use the R7 vertical and beam antenna if possible. We would need a 40' x 40' footprint for the beam antenna, 30' x 30' footprint for the R7, and 30' x 40' area for the tent and immediate surrounding operating location. Would prefer electricity come from an on-site source, but we could use our generators.
- Committee members were asked to submit logo recommendations. All members of SARC are invited to submit logo recommendations. The suggested elements are 1919-2019, the Alamo, the ARRL Logo, and a radio tower.
- In addition to having an operating location for a special event, SARC might also do a demonstration at ITC as they do draw a crowd of Family Days.

CW Training (Temporary) – no report.

Filter (Temporary) – Richard Elder, WB5ACN, explained what these filters do and asked for volunteers to help build them.

Tailgate Swap Meet Committee (Temporary) – Richard Elder, WB5ACN, reported that the next tailgate swap meet has been set up for April 28, 2018 from 7-11 a. m. at Hangar 18 Surplus.

Hangar 18 Surplus is moving to Bulverde so this will probably be the last Tailgate Swap Meet.

Old Business (Motions carried over from previous meetings) - None

New Business (Must be presented as a motion) – None

Announcements For The Good of Amateur Radio

Richard Elder, WB5ACN, announced that he is doing on Micro BITX which is a multi-band HF board from India for \$129 to which you have to add a case, power supply, etc. (7 minutes)

Richard Elder, WB5ACN, passed out band plans for the Baofeng Hand Transceivers that a lot of members got a couple of years ago.

Rosendo M. Guzman, Jr., N5YBG, announced the availability of openSPOT for \$239 that is a standalone digital radio IP gateway for DMR, D-STAR, and System Fusion.

The meeting was adjourned at 8:44 p. m.

Eric Harris, KG5SZV
Secretary



How to become a Volunteer Examiner

There is an on-going need for Volunteer Examiners (VEs). VEs staff the gateway to the amateur radio world. Everyone wanting to become a ham has to go through VEs. VEs help to grow the ham community such that we have someone to communicate with over the air.

In order to become a VE, you must pass an OPEN BOOK test. The book itself can be downloaded from the ARRL website. The test is in the book. Essentially, you read around 70 pages of material and answer a bunch of questions. Because it is an OPEN BOOK test, you can go back into the written material to verify your answers. When done, you mail the test off to ARRL who grades it and then issues credentials (a laminated card with your name and certification that you are an ARRL VE). An ARRL VE may serve at any ARRL sponsored test session. The VE Committee of SARC is one such sponsor. The Alamo Area Repeater Organization (AARO) and Radio Operators of South Texas (ROOST) also sponsor ARRL test sessions.

You must have at least a General License to become a VE. Such VEs are limited to giving Technician examinations. Those hams with an Amateur Extra License are authorized to give all three examinations. Most VEs do have Amateur Extra Licenses. This pretty well covers everything there is to know about becoming a Volunteer Examiner, but if you have questions, contact Pat Knight, AD5BR, Chairperson, VE Committee.

Beverage Antenna

These are the slides that Tom O'Brien, AB5XZ, used during his presentation on the Beverage Antenna. Upon request, the editor can send the Power Point file to you.

The Beverage Antenna

Tom O'Brien
AB5XZ

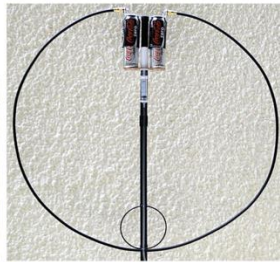
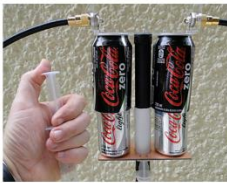
Presented to
San Antonio Radio Club
April 2018

Beverage Antenna

- .Invented by Harold Beverage, 2BML
- .First patented in 1922
- .A wire antenna, thick wire preferred
- .Bi- or uni-directional
- .Better for receiving than transmitting
- .Low to the ground
- .Straight
- .Flat ground
- .Very long
- .Over dry soil with poor conductivity

This is a kind of Beverage Antenna

.Maybe a topic for
another meeting?

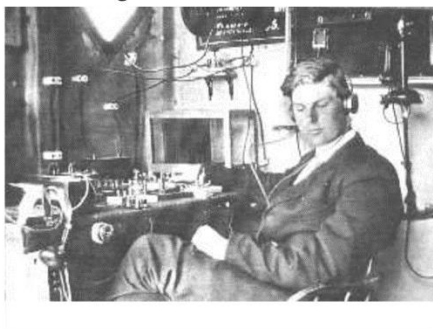


Invented by Harold Beverage

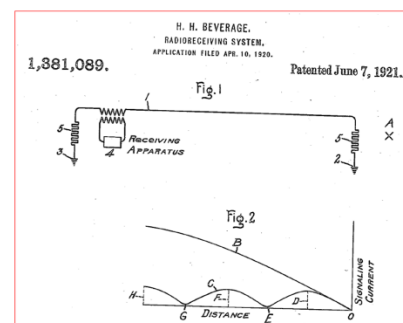
- .1893 – 1993
- .U. Maine 1915
- .General Electric
- .RCA Communications
- .1937 President I.R.E.
- . "Wave Antenna" and derivatives



Beverage at U. Maine, 1915?



Wave Antenna Patent



Pros ----- Cons

- | | |
|--|--|
| .Excellent directivity | .Very large size (one to <u>several</u> wavelengths) |
| .Wider bandwidth than resonant antenna | .Inability to rotate |
| .Efficient for receiving | .Very inefficient for transmitting |
| .Good performance over rocky soil (e.g., Hill Country) | .Poor performance over water or marshy soil |

How it works

- .Wave travels along the wire
- .Wave also travels in the ground, same direction
- .The wave part travels at nearly speed of light
- .The wave in the ground travels slower (velocity factor is less than 1)
- .The difference in arrival times is detectable at the receiver.
- .Adding a resistor at the end opposite the receiver makes the antenna directional

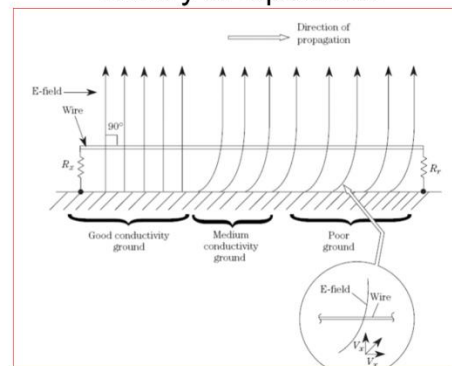
Velocity factor

$$VF = \frac{1}{\sqrt{\kappa}}$$

κ is the relative permittivity (dielectric constant) of the m

VF is 100% in a vacuum, maybe 70% in polyethylene, l

Theory of Operation



Basic Beverage Antenna, using modern circuit symbols

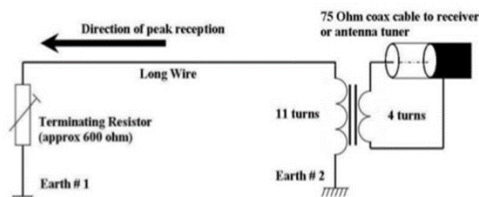


Figure 1: A basic uni-directional Beverage antenna

Radiation pattern 1 wavelength, without/with resistor

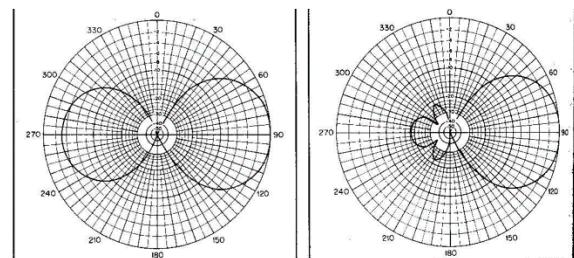


Fig. 22 — Directive pattern of a Beverage antenna that is one wavelength long. It does not have a terminating resistor.

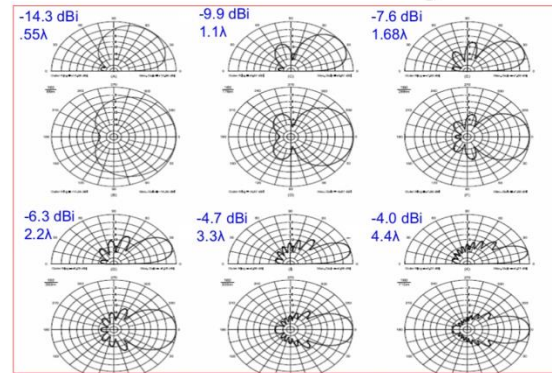
Fig. 23 — Directive pattern for a 1-wavelength Beverage. The antenna has been terminated properly.

Patterns for various lengths

Following slide shows EZNEC results for a Beverage with following characteristics:

- 2 meters high
- Over good ground
- 600 Ohm termination
- 0.55 to 4.4 wavelength
- 160 M band

Patterns for various lengths



How high?

- Not as critical as many think
- General rule:
 - Higher Beverages produce higher output
 - Higher Beverages have larger side-lobes
 - Higher Beverages have a higher elevation angle
 - Higher Beverages have a wider 3-dB forward lobe
- Laying on ground to 6 meters high is acceptable
- 1.5 x Antler Height is good idea!
- 2.5 meters is a good compromise

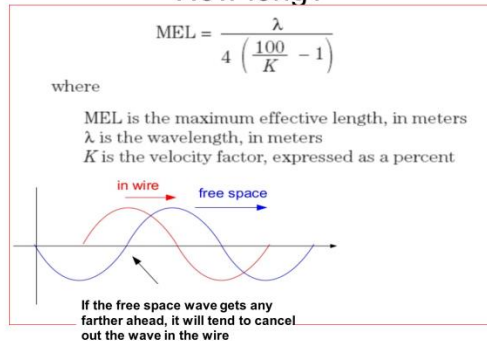
How high?

• Antler height???

- Adult moose?
- Hill country whitetail deer?
- Bullwinkle?

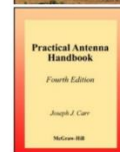


How long?



Good practical references

- The "Bible"!!
- Also check the website of Tom Rauch, W8JI:
 - <http://www.w8ji.com>
- Try the Topband Reflector as well:
 - http://lists.contesting.com/_topband/
- Joseph Carr's book also has lots of good stuff.



Also:

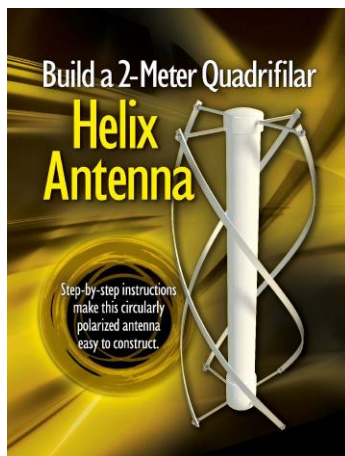
- .ARRL Antenna Book
 - . Good chapter on Beverage antenna
 - . Includes, on CD a free copy of EZNEC, which can be used to predict performance of Beverage antennas
- .If you like to research patents, look at these sites:
 - www.freepatentsonline.com
 - www.google.com/patents

There's more, but not tonight

- .Constructing a Beverage antenna
- .An array of Beverage antennas
- .Lots more
 - . Google.com
 - . Youtube.com

New terms in 1900's

- .Permittivity (Farad/meter):
 - . permittivity describes the amount of charge needed to generate one unit of electric flux in a particular medium. Accordingly, a charge will yield more electric flux in a medium with low permittivity than in a medium with high permittivity.
- .Named by Oliver Heaviside, who first suggested (in 1887) the presence of a reflective layer surrounding Earth (the Ionosphere)

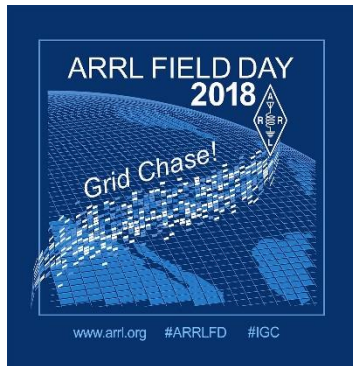


2M Quadrifilar Helix Antenna

David Finnell, N7LRY, made a presentation on his Quadrifilar Helix Antenna for 2M on October 12, 2017, at our General Membership Meeting. He was the second-place winner in the 2017 QST Antenna Design Competition, 6 Meters and Higher Frequencies category with this antenna design. He expected that QST would publish the design sometime in 2018. **That time has arrived!**

A five-page article starting on page 38 of the May 2018 QST covers his antenna design. If you are an ARRL member, the digital version of the May 2018 QST is already available on-line.

Field Day 2018 Antennas



So far, three members of SARC have advised Joe Bruno, W5AUQ, Chairperson, Field Day Committee that they want to set up personal antennas at Field Day. There is no pre-established limit on who can set up personal antennas at Field Day. There is a lot of space, and it is anticipated that everyone who wants to set up a personal antenna along with SARC antennas will be able to do so. Additionally, anyone wanted to be a crew leader for one or more additional SARC antennas is encouraged to step forward.

Reminder: The following policies concerning Field Day 2019 antennas apply:

1. SARC will include in the antenna plan any and all personal antennas that a member wants to erect provided they are reported to the Chairperson, Field Day Committee by May 31, 2018.
2. SARC will include all personal antennas brought to Field Day without previous notification to the Chairperson, Field Day Committee, and assign them to open, probably peripheral areas in the integrated plan.
3. SARC will erect the following SARC owned antennas:
 - Trailer mounted Beam Antenna on Tower for 10M/15M/20M
 - 40M Dipole Antenna (same antenna mast at *0M dipole)
 - 75M Dipole Antenna (same antenna mast at 40M dipole)
 - MFJ-1522 VHF/UHF Dual Band Vertical Antenna
4. SARC will bring out any other SARC owned antennas if someone wants to use it, sponsor it, and becomes the crew leader for its erection:
 - Cushcraft R-7 Vertical Antenna for 10M/15M/20M/40M
 - Cushcraft R-5 Vertical Antenna for 10M/15M/20M (SARC has two of these.)
 - 6M Dipole
 - 10M Dipole
 - 15M Dipole
 - 20M Dipole
 - 75M Dipole (second one)
 - G5RV Antenna

SARC owns sufficient antenna masts that it can put up almost everything that it owns. SARC has sufficient guide ropes that it is not a problem either. SARC may even be able to lend some poles and ropes to erect personal antennas if the need is identified ahead of time.

Typically, members gang together to put up antennas whether they are personal ones or SARC owned. It is one of the better aspects of Field Day – hams helping each other out. SARC does not want to see effort expended on putting up a lot of SARC antennas where some are never used.

To summarize:

- If you have a personal antenna that you want to bring to Field Day, bring it.
- If you want to use a SARC antenna that is not in the plan yet for use, volunteer to be the sponsoring crew leader to set it up and take it down.



Volunteer Examiners at Work



Pat Knight, AD5BR, Chairperson, Volunteer Examination Committee, and five other Volunteer Examiners conducted the regular fourth Saturday of even months test session at the Great Northwest Library starting at 10:00 a. m. There were nine candidates. This was a very successful session with seven candidates earning the license level they came to get. One went on to also earn a General license. The result was two Generals and five Technicians.



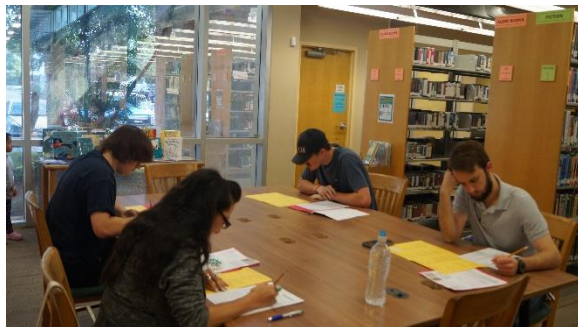
Five candidates taking their examinations at the Great Northwest Library on April 28, 2018 on the back table



Getting set up for examinations at the Great Northwest Library on April 28, 2018



VEs waiting for candidates to present their tests for grading at the Great Northwest Library on April 12, 2018



Four candidates taking their examinations at the Great Northwest Library on April 28, 2018 on the front table

SARC on Trading Post

Surplus SARC equipment, mostly donations, has been listed on the Trading Post webpage of w5wc.org. It is being sold as is. Prices are heavily discounted below prices for similar equipment on eBay. In addition to the low listed price, SARC is inclined to deal.

LIKE THIS NEW LOOK NEWSLETTER??

Well to be honest, it was not planned that way, it just that our new editor needs to develop some of his rusty skills in Word, Powerpoint and maybe Publisher.

Please drop me (editor) a note for changes you would like to see, maybe I can add them as I smooth out this product next month.

Yahoo Groups

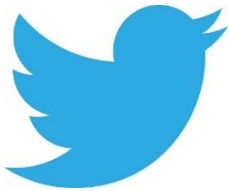


SARC has had a Yahoo Group for a number of years now. Its name is W5SC.

W5SC is being used to publicize SARC business meetings. It can be used for other things like promotion of VEC testing and classes. Members of the W5SC Yahoo Group can and have asked each other technical questions or sought assistance.

W5SC is a closed group. To become a member, go to groups.yahoo.com. (You may need to have a Yahoo account.) This will take you to a website where your groups, if any, are shown with a Search Group box at the top. Enter W5SC. This will take you to the search results page with W5SC on it. Select W5SC to go to the W5SC Yahoo Group. You will then need to select + *Join Group*. This generates a message. SARC members can expect approval to join the W5SC in probably less than 24 hours.

SARC Tweets



Reminder: there are two active Twitter accounts for the San Antonio Radio Club. They are @SARadioClub and @ARadioFiesta.

The @SARadioClub is being used to publicize SARC meetings. It can be used for other things like promotion of VEC testing and classes.

As Radio Fiesta 2017 work has commenced, the @ARadioFiesta is being used again for the January 14, 2017 Radio Fiesta.

SARC members are encouraged to follow both Twitter accounts.

SARC Facebook



There is a San Antonio Radio Club – SARC (@saradioclub) Facebook Page.

The newsletter editor is making posts about SARC meetings and other activities. Any Officer, Committee Chairperson, or member who believes that they have information that should be posted to this page should contact the newsletter editor using the contact information for the newsletter editor on page 2 of this newsletter.

SARC members are encouraged to follow this Facebook Page.

SARC SLACK



There is a San Antonio Radio Club Slack team – w5sc.slack.com.

Slack teams are meant to foster communication between team members. Paul Guido, N5IUT, has established the w5sc.slack.com team for SARC. He has also established some channels. Think of the channels as topical areas.

To join send an email to Paul Guido, N5IUT, at radioteacher@gmail.com. In actuality, any team member already a part of the w5sc.slack.com can invite you, but Paul is known to be on it.

SARC has a website:

w5sc.org

Webmaster: Bill Craft KD2HIQ
Billc851@gmail.com
210-233-8863

Amateur Radio License Classes

A Technician Course followed by a General Course is currently being planned for the July-August 2018 time frame.

As the plans for these classes firm up, they will be summarized here.

SARC Meeting Dates for next 12 Months

May 10, 2018
June 14, 2018
July 12, 2018
August 9, 2018
September 13, 2018
October 11, 2018
November 8, 2018
December (None)
January 10, 2019
February 14, 2019
March 14, 2019
April 11, 2019

Meetings are held at Grady's Barbeque,
327 E. Nakoma Dr., San Antonio, TX
78216 at 7:00 p. m.

Come early and eat with other members
coming early.

License Testing Dates for 2018

April 28, 2018
June 23, 2018
August 25, 2018
October 27, 2018
January 12, 2019
February 23, 2019
April 27, 2019

Times and locations along with required
document information can be found on
SARC's website.

SARC does all its licensing testing as a part
of ARRL Volunteer Examiner Coordinator
(VEC) organization so all the Volunteer Ex-
aminers in SARC are duly authorized Vol-
unteer Examiners of ARRL's VEC.

Field Day 2018

Setup: Friday, June 22, 2018
Operations: Saturday, June 23, 2018
& Sunday, June 24, 2018

*Where SARC proves they are an
eating group with a radio problem.*

More information to follow, but hold these
dates.

JOTA

Boy Scout Jamboree On The Air

This year's date is Oct 20, 2018. The plan
is to again hold it at the Texas Transporta-
tion Museum.

For more information, contact:
Gary (Mike) Harrison, KB5KST

Radio Fiesta 2019

January 12, 2019
Schertz Civic Center
See newsletter article for more information

Emergency Communications

If you are interested in emergency commu-
nications, contact:
JC Smith N5RXS